

REMARKS/ARGUMENTS

In the Office Action, the Examiner has rejected independent claim 1, which is the only independent claim pending in the application, under 35 U.S.C. § 103(a) based on Hara in view of Siegrist. Applicant respectfully traverses the Examiner's rejection for at least the reasons discussed below.

In Applicant's invention, two injection units are retained on a single heating cylinder retention member. However, a problem with this configuration where the two injection units are retained on a single heating cylinder retention member is that when the two units are driven concurrently by a single servo motor, one nozzle of one of the injection units touches the mold before the nozzle of the other injection unit. This occurs due to the lengths of the injection units being different from each other due to unavoidable manufacturing tolerances, i.e., a difference of about 0.1 – 0.2 mm in whole length between the parallel injection units. As can be understood, if the lengths are different and both units are driven by a single motor, one unit will touch the mold before the second unit, i.e., the shorter unit will be short of nozzle touch force. This results in the problem that resin leaks from the tip of the nozzle of the injection unit that is shorter, i.e., short of nozzle touch force. Thus, to correct this problem, further in Applicant's invention, two servo motors individually drive each of the injection units that are retained on the single heating cylinder retention member.

In the Examiner's rejection of claim 1 in the Office Action, Applicant respectfully submits that the Examiner has not made any argument as to where Applicant's claimed feature of two injection units retained in parallel on a single heating cylinder retention member can be found in the references, either alone or in combination. Due to this particularly claimed configuration, Applicant's further claimed two servo motors provide particular utility for advancing the heating cylinder retention member toward the molds so that the nozzles of the two injection units can touch the molds. It is for this reason that two servo motors are used. It is not for the reason argued by the Examiner, when arguing for modifying Hara by Siegrist, for "a multiplied effect in driving and rotating."

The Examiner has provided no reason why such a “multiplied effect” would even be desirable in either Hara or Siegrist. As noted by the Examiner, Siegrist doesn't even disclose two servomotors.

Applicant respectfully submits that the absence of this claimed configuration from the cited references, and consequently the Examiner's failure to argue that this configuration is disclosed in the references, renders the rejection under 35 U.S.C. § 103(a) improper. If the Examiner disagrees with Applicant, Applicant respectfully requests that the Examiner particularly point out where in the references this claimed configuration of two injection units retained in parallel on a single heating cylinder retention member, in combination with two servo motors, is disclosed. Figures 1 and 2 of Applicant's specification clearly show the heating cylinder retention member 3, the two injection units retained in parallel on the heating cylinder retention member, and the two servo motors 9A and 9B. The specification at least at page 9, first paragraph, describes how the heating cylinder retention member 3, and hence the two injection units, move linearly together with the nut pieces 7A and 7B, which are independently driven by the two servo motors 9A and 9B, respectively.

In Hara, an injection molding machine is disclosed that includes two injection apparatuses 1 and 2. Even though these two apparatuses may be in parallel and are in nozzle touch with the stationary plate 3, as argued by the Examiner, Hara does not disclose that the two apparatuses are retained on a single heating cylinder retention member, as claimed by Applicant and as discussed above. In fact, Figures 2 and 3 clearly disclose that they are not. The only disclosure in Hara as to a nozzle touch mechanism, states no more than “the injection apparatus 1, 2 are provided at their distal ends with nozzles 25, 26 and with heating cylinders 27, 28 which are extractable and retractable by means of nozzle touch cylinders (not shown).” Col. 4, lines 10-13. (emphasis added).

Siegrist merely discloses a nozzle touch mechanism with a ball screw mechanism using a motor 22 as a driving source. In an injection molding machine according to Siegrist, however, injection units are formed as individual

injection molding machines, and nuts of ball screw mechanisms thereof are paired and driven to rotate by a single motor 22. There is no disclosure for two injection units and, consequently, none for two units retained in parallel on a single heating cylinder retention member.

Even if Hara is modified by Siegrist, as argued by the Examiner, there is still no disclosure for two injection units held in parallel on one heating cylinder retention member. Hara merely discloses to have a nozzle touch mechanism to be driven by a hydraulic cylinder. Siegrist discloses an injection unit that is formed individually and a paired ball screw mechanism thereof is driven by a single motor. Even if these references are combined such that two injection units disposed in parallel are provided, as argued above, this combination still does not disclose or suggest Applicant's claimed invention where two injection units are held on one heating cylinder retention member such that through the use of two servo motors, the heating cylinder retention member is advanced toward the molds so that nozzles of the two injection units can touch the molds. This provides for predetermined nozzle touch forces being achieved by each nozzle in spite of an unavoidable difference in whole length between the two injection units.

Therefore, Applicant respectfully submits that neither Hara nor Siegrist, either alone or in combination, discloses all of the features of Applicant's invention as claimed in independent claim 1. As such, Applicant respectfully submits that the application is now in condition for allowance with claims 1-3 being allowable.

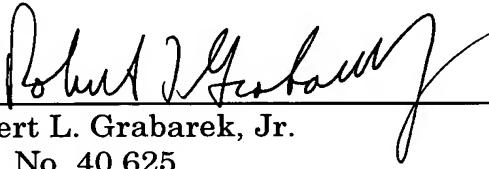
Further in this paper, Applicant has amended the specification to correct typographical errors.

If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response. Please charge any such fee or any deficiency in fees, or credit any overpayment of fees, to Deposit Account No. 05-1323 (Docket 029268.53365US).

Respectfully submitted,
CROWELL & MORING LLP

Dated: April 12, 2006

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April 12, 2006
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